Motor Neurons and Dopaminergic Neurons: Novel Stem Cell-based Solutions Accelerating Research and Drug Discovery

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1. Introduction

Neurons isolated from human tissue have been widely used in basic research, drug discovery and for the study of neurodegenerative disorders. However, the use of these cells is confined to ethical and technical issues mainly associated with procurement of human tissue and isolation of functional cells from the tissue. As an alternative, both human embryonic stem cells (hESCs) and human induced pluripotent stem cells (iPSCs) offer great promise to generate specialized cells from different lineages, including human neurons.

Lonza Walkersville, Inc. in collaboration with California Stem Cell, Inc. recently launched the MotorPlate™, hESC derived motor neurons (hMNs). These cells are functional, high-quality human motor neurons available in a ready-to-use format (96-well plates or 384-well plates) for use in high throughput applications. We have since developed a method to cryopreserve hMNs that doesn't compromise the functional characteristics of non-cryopreserved neurons. The frozen vial format gives researchers the flexibility to store the cells before initiation of MNP differentiation. (B)

2. Schematic Process of Motor Neuron Progenitor Differentiation

3. hESC-derived MNPs

4. iPSC-derived MNPs

5. Functional Characterization of MNPs


7. Functional Characterization of DA Neurons

8. Lonza Pluripotent Stem Cell Service Offering

References


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